

Monitoring Report –

Laos – Nam Ngiep I Hydropower Project

Site visit: February 2017

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Project: Nam Ngiep I Hydropower Project

Safeguard Category: A

Cost: est. \$900 million

AsDB Board Approval Date: 2014

Public Law No. 113-235 requires the United States Agency for International Development to undertake monitoring reviews of selected multilateral development bank proposals. The purpose of these reviews is to: 1) assess the adequacy of safeguard implementation for the project; 2) evaluate the incorporation and effectiveness of any U.S. Government recommendations; or 3) based on site visit findings, provide additional recommendations to improve the environmental and social performance of the project.



Location of Nam Ngiep 1 Hydropower Project

This monitoring review is on the Asian Development Bank (AsDB)-financed Nam Ngiep I hydropower project (NNPI). This review, conducted in February 2017, focused on the first phase of resettlement of Hmong ethnic group to the Houay Soup Resettlement Area (HSRA), and treatment of the project's no net loss of biodiversity requirement with implications for the biodiversity offset.

Current Status: NNPI is a \$900 million, 290 megawatt, private-sector hydropower project. The AsDB approved financing for NNPI in 2014. The electricity generated is for both export and domestic use. The project is currently meeting its construction schedule with expected completion date in 2018 and commercial operation in 2019.

The reservoir of NNPI will inundate the houses and productive lands of five villages and impact an additional three villages and one hamlet. It is estimated that 3,540 people from 528 households will be directly impacted by total relocation, while 1,706 persons will lose productive lands at the upper reservoir and Houay Soup Resettlement site. There are 474 households along the transmission line alignment which will lose small parcels of land, but none are affected by resettlement and livelihoods are not significantly impacted. The resettlement of the first group of project affected households from Hatsaykham hamlet to the HSRA was completed in November 2016. Of the 38 households to be resettled from Hatsaykham, 20 households moved into the HSRA while the remainder selected cash compensation and self-resettlement. The resettlement process is moving forward with final consultations with the remaining villages from the main reservoir.

The project has identified at least seven endangered/endemic terrestrial and aquatic species that will be directly or indirectly impacted in the watershed and will require species-specific conservation plans implemented within the watershed and a biodiversity offset to fulfill AsDB's safeguard policy and the concession agreement requirement of no net loss of biodiversity. These aspects of the project are behind schedule.

The comments in this report reflect the views of those interviewed. Recommendations are a synthesis of site visit observations, discussions, and environmental and social documentation available at the time of the site visit or shortly afterward.

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List of Acronyms

AsDB	Asian Development Bank
ESIA	Environmental and Social Impact Assessment
GoL	Government of Lao People's Democratic Republic
HSRA	Houay Soup Resettlement Area
MDB	Multilateral Development Bank
MONRE	Ministry of Natural Resources and Environment
NC-NX	Nam Chouane/Nam Xang
NNPI	Nam Ngiep I Hydropower Project
NNPIPC	Nam Ngiep I Power Company
NT2	Nam Theun 2
USAID	United States Agency for International Development
USAID E3	USAID's Bureau for Economic Growth, Education, and Environment

Summary of Key Findings and General Recommendations

Key Findings

Resettlement and Ethnic Minorities

1. The initial efforts by Nam Ngiep I Power Company (NNPIPC) to support the resettlement process appear to have been managed in a well-conceived and culturally-appropriate manner. However, there are concerns about compensation consultations between villages/hamlets.
2. A high percentage of resettlers selected cash compensation and self-resettlement.
3. NNPIPC made substantial efforts to reduce the impacts of construction, camp followers, and associated activities on the resettlement area and surrounding villages.

Biodiversity

4. The initial biodiversity survey for the Nam Ngiep I hydropower project (NNPI) Environmental and Social Impact Assessment (ESIA) had significant shortcomings. This led to incorrect conclusions regarding project impacts on biodiversity, which need to be remedied before progress can be made on developing a watershed management plan for mitigating adverse biodiversity impacts and selecting an appropriate biodiversity offset for residual impacts.
5. The proposed biodiversity offset, Nam Chouane/Nam Xang (NC-NX), was selected with insufficient knowledge of existing biodiversity in the NNPI watershed, with limited surveys of the proposed offset, without clear guidance on selection criteria required to achieve no net loss and inadequate expert technical advice from the Biodiversity Advisory Committee.
6. The Nam Ngiep watershed will likely be exposed to significant cumulative impacts due to the presence of logging concessions, several mining concessions, as well as seven operational and proposed hydropower facilities in the watershed.
7. The concession agreement with financial ceilings for NNPI commitment to both a watershed management and a biodiversity offset was determined prior to completion of the ESIA, and before information was available as to the scope and extent of measures required to meet the biodiversity no net loss requirement.
8. It will be challenging for NNPIPC to ensure that the management of the biodiversity offset effectively meets AsDB safeguard policy (and loan commitment) and the concession agreement requirement of no net loss.
9. The absence of a national policy or legal framework with guidance for achieving no net loss and establishing biodiversity offsets produces both inconsistent approaches among developers, and in delivering biodiversity outcomes.

Civil Works

10. NNPIPC is demonstrating good management practices for construction impacts on the site, the workers, and the surrounding community, including worker safety and reducing impacts of construction traffic on local communities and for managing solid waste.

General Recommendations

Below are a set of overarching recommendations. Specific recommendations for each finding are provided in the main text of the report.

1. *Resettlement process*: The first group of project-affected households from Hatsaykham have resettled to the HSRA, of which 20 of the 38 households have moved into the HSRA and the remainder have chosen self-resettlement. Final consultations with the remaining villages are in process.
 - Strengthen the transparency of the policy for resettlement compensation between villages to avoid speculation among the villagers of preferential treatment and develop a monitoring system sensitive¹ enough to identify which households are not doing well rebuilding their livelihoods, including self-resettlers who have stayed within the project districts.
2. *Ethnic minorities*: The Government of Laos (GoL) is officially committed to embracing the multi-ethnic dimension of Laos through both national and international commitments. Ninety-nine percent of the project affected population to be resettled belongs to the Hmong ethnic minority.
 - Build upon the integration of cultural practices specific to Hmong as demonstrated in the resettlement process to other areas within the resettlement process, including the health clinic and teaching local language in school at HSRA.
3. *Biodiversity*: The project will impact at least two species classified as globally endangered on the IUCN Red List and at least five and potentially four additional endemic fish species. The project is located within the Nam Ngiep watershed, which will be exposed to significant cumulative impacts due to the presence of logging, mining and hydropower concessions. Recommendations are intended to support both national efforts and project specific actions.
 - At the project level, reassess NC-NX as a potential biodiversity offset in light of recent biodiversity information collected for both the NNPI sub-catchment and for NC-NX, with the oversight of the reconstituted Biodiversity Advisory Committee.
 - Explore the potential for the other projects within the Nam Ngiep basin to support an aggregated offset² that would encompass a broad area from NC-NX to Nakai Nam Theun National Protected Area to preserve this landscape.

¹ Each self-resettler household has a self-resettlement plan and ADB has requested NNPI to follow all those who have self-resettled within the project impact zones.

² An aggregated offset is appropriate where the same ecosystem is exposed to cumulative impacts from several operators. An aggregated offset might offer overall economies of scale, as well as ecological advantages.

- At the national level, support GoL efforts in developing a policy and legal framework for biodiversity offsets, to include no net loss objectives and mechanisms to insert offsets into a broader strategic framework for biodiversity conservation.
4. *Construction*: NNPIPC is demonstrating good management practices of construction impacts on the site, the workers, and the surrounding community.
- Ensure that the irrigation system for the resettlement village is operational before the next dry season.

Purpose and Scope of Monitoring Review

Public Law No. 113-235 requires the United States Agency for International Development (USAID) to undertake monitoring reviews of selected multilateral development bank (MDB) proposals. The purpose of these reviews is to assess the adequacy of MDB safeguard implementation for the project and incorporation and effectiveness of any U.S. Government recommendations. Where appropriate, recommendations are provided to improve the environmental and social performance of the project implementation. USAID identifies projects subject to a monitoring review based on pre-board approval reviews that look for potential impacts on the environment, natural resources, public health, or indigenous peoples.

As part of USAID's pre-financing review responsibilities under Title XIII, USAID conducted two separate visits to the project site prior to AsDB Executive Board approval to gain a better understanding of the environmental and social aspects of the project and provide recommendations to improve the project. Each of these visits consisted of meetings with GoL officials, the project company (Nam Ngiep I Power Company), and civil society (development and conservation NGOs). Additional information can be found in the October 2012 MDB Report to Congress and accompanying trip reports.

Key technical areas identified based on the site visits and review of the ESIA included: inadequacy of biodiversity baseline data to support the proposed development of a biodiversity offset, inadequate cumulative impacts analysis, and the absence of a 'no project' scenario in the alternatives analysis. Findings following both site visits were discussed with the project sponsor and AsDB in-country team.

USAID, in consultation with the U.S. Departments of Treasury and State, determined that a monitoring visit to the project during this stage of construction was timely. The review focused on the first phase of resettlement of households from the Hmong ethnic group to the HSRA, and treatment of biodiversity no net loss requirement with implications for the project's proposed biodiversity offset.

Methodology

A monitoring review is a three-step process involving information collection, analysis, and development of recommendations. Typically, USAID³ gathers information based on available literature; observations made during the site visit to various project areas; and semi-structured interviews with project proponents, projected-affected communities, and other stakeholders.

³ USAID/Economic Growth, Education and Environment (E3)

As part of this monitoring review, USAID staff, with participation from the U.S. Departments of Treasury and State, conducted a visit to the NNPI project area, including the dam site, and areas downstream of the proposed power station and the resettlement community. The trip included meetings with the AsDB, NNPIPC management and staff, GoL ministries in Vientiane and in the provinces/districts, and villagers relocated in the first phase of resettlement.

Specific areas of focus for the team were the first phase of resettlement of households from the Hmong ethnic group to the HSRA, and treatment of biodiversity no net loss requirement and implications for the biodiversity offset. Due to limited time, this field review did not focus on meetings with Hmong villagers who have yet to be resettled, host community villagers, and villagers downstream who are dependent on fisheries.

The comments in this report reflect the views of those interviewed. Recommendations are a synthesis of site visit observations, discussions and environmental and social documentation available at the time of the site visit or shortly afterwards. When additional information becomes available, USAID will review and revise recommendations, as warranted, and issue an updated report.

Background - Nam Ngiep I Hydropower Project

The Nam Ngiep watershed will be subject to extensive development. Seven hydropower projects are proposed in the watershed, one of which is already in operation (Nam Ngiep 2). Three others, including NNPI, are under construction. Three mining leases are also under survey, one at the center of the watershed and the two others in the upper reaches near the headwaters and near the large Phou Bia mine site. The middle reaches of the Nam Ngiep watershed are designated as production forest, and rubber plantations exist in the project area. Subsequent to project approval, the NNPI sub-catchment was redefined to incorporate all areas to the Xaysomboun northern provincial boundary which added 60,000 ha, for a total of ~300,000 ha. This redefinition of the sub-catchment resulted in a larger project footprint than originally anticipated. However, it was agreed with the GoL to not include the additional 60,000 ha under NNPI's watershed management plan. Therefore, the NNPI sub-catchment with an area of approximately 146,017 ha has the highest priority in the watershed management plan that the NNPIPC is developing in collaboration with relevant government agencies.

NNPI is located on the Nam Ngiep, about 41 km upstream of Pakxan (Bolikhamxay province) and approximately 145 km southeast from Vientiane. The Build-Operate-Transfer project will sell electricity to both the Electricity Generating Authority of Thailand (EGAT) and *Electricite du Laos* (EDL) under a concession agreement provided by the GoL and a Power Purchase Agreement with EGAT and EDL. The project consortium consists of KPIC, a subsidiary of Kansai Electric Power Co. (Japan), EGAT (Thailand), and Lao Holding State Enterprise (Laos).

The main dam will produce 272 MW for export with the re-regulating dam producing 18 MW for domestic use. The project will operate daily at 16-hour peak operations. The reservoir will be approximately 70 km in length and 148-m high dam. The project transmission lines will connect to the Nabong substation and share the transmission lines with the Nam Ngum 3

hydropower project. EDL will install one transmission line to connect with the local grid in Pakxan.

The project is located in two provinces, Xaysomboun and Bolikhamxay, with most of the reservoir and villages to be resettled located in Xaysomboun province. Ninety-nine percent of the population to be resettled belong to the Hmong ethnic minority, and one percent is Lao Tai. The reservoir of NNPI will inundate the houses and most of the productive lands of four villages and one hamlet, and impact some houses and productive lands of an additional four villages. Compensation consultations are still ongoing with households in those villages opting for cash compensation. In addition to the directly affected villagers, it is estimated that the project could indirectly affect 13,000 villagers upstream and downstream of the dam site,

Nam Ngiep watershed is located in the Luang Prabang Montane Rainforest ecoregion, characterized by a variety of forest associations including montane hardwoods, mixed conifer-hardwood forests, open montane forests, and open conifer forests. An updated biodiversity survey conducted in 2015 identified seven endangered/endemic terrestrial and aquatic species that are likely to be directly or indirectly impacted⁴ in the watershed. In addition to its legal obligations under AsDB's safeguard policy on natural habitats, NNPIPC has two biodiversity-related financial obligations under the concession agreement. The two financial obligations under the concession agreement are \$6.55 million for watershed management and \$3.87 million for the biodiversity offset for the duration of the concession period, which ends 27 years after start of commercial operations. These funds go directly to the GoL.

The concession agreement requires that the biodiversity losses in areas associated with the Project be addressed through biodiversity conservation activities to achieve no net loss of biodiversity.⁵ NNPI is obliged to provide technical support to the GoL for the preparation and implementation of biodiversity conservation, while the GoL "shall take necessary actions to ensure that the recommended measures, including formalizing the necessary biodiversity offset for both terrestrial and aquatic habitats, to be effectively implemented in accordance with the timeline to be specified."⁶ Although an offset site was identified and approved by the provincial governor in December 2015, the updated surveys for both the watershed and the proposed biodiversity offset have revealed that the proposed biodiversity offset is probably not sufficient in area or habitat type to offset biodiversity losses within the watershed, even with species specific management plans. Presently, as part of its obligation to provide technical support, NNPIPC is continuing to conduct surveys to inform the identification of an appropriate biodiversity offset.

The project has several layers of supervision. The Lenders' Technical Advisors (LTA) evaluate the work of NNPI and its contractors in construction and safety, plus environmental and social work. The LTA's environmental and social monitors serves as the external monitor as required

⁴ The reservoir and the new roads will create greater access into the watershed.

⁵ The principle of "no net loss" or "a net gain" of biodiversity requires that the pre-project net area and quality of biodiversity be maintained, or preferably enhanced in terms of key biodiversity components such as species diversity (numbers and/or composition), habitat extent and/or structure, and ecosystem function. In other words, biodiversity should be, at the minimum, the same but preferably better as a result of the project.

⁶ Concession Agreement, Clause 54 of Annex C

by AsDB for Category A projects. The Independent Monitoring Agency, engaged by the government and funded by NNPI, monitors and evaluates compliance with environmental safeguards and measures compliance with social entitlements and obligations and reports to the Government. An Independent Advisory Panel (IAP) began monitoring Project activities in 2013 as required by AsDB's Safeguard Policy Statement for highly complex and sensitive projects. The IAP's overall role is to provide an objective, balanced, and impartial view on the overall project preparation and implementation processes, including identification of issues that concern social and environmental impacts and risks; and (ii) independent advice to facilitate decision making on complex and controversial issues to ensure the actions taken regarding such issues comply with the safeguard requirements. Its scope of works includes review of all environmental assessments, operational and construction plans, environmental management and monitoring plans, resettlement action plans, plan for indigenous peoples, and associated reports on project progress and corrective actions. A Biodiversity Advisory Committee was established to: i) provide technical advice on the "no net loss and/or net gain" evaluation; (ii) provide technical advice on the offset planning (including site selection) and development of the Biodiversity Offset Management Plan; (iii) monitor the implementation the Biodiversity Offset Management Plan; and (iv) evaluate the implementation effectiveness. AsDB organizes an official mission to the project site every six months, but it will deploy immediate missions for social conflicts, using a risk based approach.

FULL FINDINGS AND RECOMMENDATIONS

Resettlement and Ethnic Minorities

Finding 1: The initial efforts by NNPIPC to support the resettlement process appear to have been managed in a well-conceived and culturally appropriate manner. However, there are concerns about the compensation process between villages/hamlets.

The responsibility of resettlement lies with NNPIPC's Social Management Office (SMO). The GoL established the provincial resettlement and livelihood restoration committee (PRLRC) supported by resettlement management units (RMU) in Xaysomboun and Bolikhaxay provinces. The SMO and PRLRC work together to facilitate resettlement and relocation in a manner that meets commitments under the Concession Agreement and AsDB safeguard requirements.

Several years prior to resettlement, NNPIPC engaged village heads and elders in the resettlement site selection process through visiting seven potential sites.⁷ The first challenge was to find a large enough space in a location acceptable to project-affected villagers and the GoL for the initial 500 households that were expected to resettle.⁸ When the final site was agreed upon, a traditional ceremony took place that indicated that the site and thus the village

⁷ NNPIPC took the village head to other resettlement projects, including NT2, which informed his comment on monitoring and continuing support for households. The sites under consideration were Samtoey, Phalavaek, Phukatha, Pha Aen, Hat Gniun, Nam Choi and Houay Soup.

⁸ NNPIPC did not expect the high percentage of settlers that would eventually chose self-resettlement.

would be prosperous. However, it was acknowledged by several interviewees that this decision did not mean everyone wanted to relocate to that site.⁹

NNPIPC hired a Hmong architect¹⁰ to interact with the Hmong villagers in designing the resettlement site.¹¹ Consequently, extensive planning went into the orientation of houses on each plot and arrangement of interior rooms, conforming to traditional practices. The resettlers were also able to choose the location of their homes in relationship to other villagers being resettled, most choosing to live in clusters with other clan members. Resettlers believe that their new homes are better than their previous homes, due to materials used and quality of construction. NNPIPC assisted villagers in dismantling their existing homes and moving their belongings, including salvageable construction materials, to the new resettlement site. In some cases this included their original homes, which are now located next to their new concrete homes.

The resettlement area also includes a pre-primary school,¹² teachers' accommodations, installation of temporary domestic water supply system, installation of 22 kV and 0.4 kV distribution line and construction of a solid waste disposal site.¹³ Still to be completed in the second phase are the medical clinic, primary and secondary school, market, bus station, village meeting hall, the permanent water supply system and irrigation pond with canal system. The permanent water supply system will be piped down to a water storage tank from permanent hillside streams.

A section of National Protected Forest (3,222 ha) on the western border of the resettlement area has been allocated to the resettlement village. The forest will be managed by the HSRA community through an integrated Natural Resources Management Plan based on a participatory land use planning process. It is expected that activities within the National Protected Forest will be consistent with the overall watershed objectives.

The first group of project affected households from Hatsaykham hamlet resettled to the HSRA in November 2016. Of 38 households that were displaced, 20 households moved into the HSRA (and expanded into 24 households), while the remainder selected cash compensation and self-resettlement.

The Concession Agreement (Annex C, Clause 87) requires NNPIPC to assist project affected people to regain, maintain and improve their net incomes and living standards beyond the pre-project levels. To meet this requirement, each household in the HSRA is receiving a land title

⁹ The option for self-resettlement, the need for final choice survey and preparation of self-resettlement plans were included in the Resettlement and Ethnic Development Plan finalized in 2014.

¹⁰ He was a professor at the Lao National University.

¹¹ Additionally, the project has engaged ethnic Hmong staff in key positions of the Social Management Office of the Environment and Social Division to work regularly with affected Hmong communities. This includes female staff, as many Hmong women have no working knowledge of Lao language and need translations, including gender-segregated discussions. The senior community relations team leader is a female Khmu. Three-dimensional models of the site development were used by the team in their discussions with the community.

¹² The primary school - grades 1-3 speak Lao, while Hmong is spoken in households.

¹³ These activities are covered in the Initial Environmental Examination to identify and assess the potential environmental and social impacts of the proposed development of the HSRA.

for: housing plot (800 m²), adjacent garden land (400 m²), 0.1 ha of irrigated paddy land/per person, cash crop land (0.1 ha/person), tree crop land (0.1 ha/person) and firewood land (0.08 ha/person). The resettlers received in kind and cash compensation for any additional assets, such as fruit trees which were compensated in cash. NNPIPC compensated in cash outbuilding infrastructure, such as chicken coops. The resettlement site appears to be large enough to accommodate second generation families, as several second generation homes have already been constructed. A section of land has been set aside to accommodate household expansion in the future.

There are mixed opinions regarding the soil quality at the HSRA; some believe it is similar to their original land, while villagers who have not moved are concerned about the quality. The NNPI's pilot rice plot has yielded 1.8 to 3.2 metric tons/ha the first year, which should be sufficient to feed a family. NNPIPC is leveling the land and conditioning the soil for the rice paddies. Additionally, to ensure sufficient calorie intake, each household will be provided with rice for the first five years post-resettlement, the quantity of which will decrease annually after the initial two years support, so that households do not become dependent upon the project. Transitional allowances, including protein, is for three months, except for vulnerable households who will receive twelve months of transitional allowances. Livelihood activities that will be or are being supported by NNPIPC include grazing land development for livestock, fish farms, cash crops, and vegetable production in greenhouses.

In a demonstration of social reconstitution in the new site, traditional ceremonies carried out prior to resettlement have reportedly continued. In addition, as part of the project's Cultural Heritage/Preservation Action Plan, a Hatsaykham cultural book is nearly completed. The project has plans for a cultural display in the HSRA of Hmong artifacts. There is also evidence that resettlers have a sense of ownership of their new properties, evidenced by improvements like expanding their buildings, re-painting the exterior of homes with various colors, tiling patios, building fences around their homes, and designating garden areas.

To promote the development of human capital, NNPIPC has established a scholarship program for students who are interested in public service, such as working as a teacher or in the medical profession. Thirty scholarships were awarded for 2016-2017 academic year. Eighteen were awarded to Hmong students and 14 of the 30 were female. As of December 2016, a total of 81 scholarships had been awarded to students from the two provinces, of which 50 are Hmong and 27 female.

It is anticipated that approximately 20 percent of displaced households from the remaining four villages will choose to relocate to the HSRA. Households from a second displaced village will be resettled into the HSRA in the second phase of resettlement in May 2017 and other villages will be resettled in later phases. The first phase of resettled villagers is looking forward to the other four villages moving into the resettlement site. In addition to knowing people from the other four villages, the increased number of households will enable the community to be developed. There are no concerns about inter-community tensions. Fishing is primarily for subsistence and is reportedly very difficult in the resettlement area. Before resettlement, villagers report catching 10 fish per trip, whereas they now only catch one fish and they have to go further downstream to fish.

While the resettlement component of the project is moving forward with final compensation consultations and resettlement of the remaining villages, the consultation process has been difficult. Villagers that have already been resettled perceive that compensation to the last four villages will be greater than what they received due to the protracted consultations. There is sensitivity with resettled villagers that there should be a fair and equal system for payments for all villagers.

Recommendations:

- Strengthen the transparency of the policy for resettlement compensation between villages to avoid speculation among the villagers of preferential treatment.
- Develop a monitoring system sensitive enough to identify which households who have self-resettled within the Project area of influence¹⁴ and are not doing well rebuilding their livelihoods to enable NNPIPC to step in and provide more resources and training when necessary.
- Develop a culturally appropriate medical clinic at HSRA through the integration of local language and culture; and traditional and conventional medical systems.¹⁵
- Provide the opportunity to teach the local language in schools at HSRA to facilitate the preservation of ethnic minority cultures.

Finding 2: A high percentage of resettlers selected cash compensation and self-resettlement.

All households were given the option of relocating to the resettlement area or receiving cash compensation and self-resettling. Ninety-nine percent of the affected Lao Tai in the upper section of the reservoir chose cash compensation whereas only one percent preferred the land option. Eighty percent of Hmong are likely to choose self-resettlement, although they expressed that it is a very difficult decision to make. The explanation for the high rates of self-resettlement was that the compensation offered, estimated at an average of \$40,000/household, was more money than a villager would typically see in a lifetime as in terms of cash, not value. In some cases, self-resettlers moved to places where they have family and/or land, so they would not have to buy everything – e.g., house, agricultural land.¹⁶ Non-monetary benefits of the resettlement community did not factor into the villagers' decision calculus to self-resettle. Even with the support of NNPI and the GoL, a few villagers speculated that it would be too challenging to adapt to a new environment where people are strangers. At this point, it is not clear whether self-resettlement will lead to better or worse outcomes for resettlers than relocating at HSRA. There is the perception that some villagers have not been spending the compensation money wisely. It is recognized that prior to release of compensation, NNPIPC provides training on banking and financial management. As has been seen in other projects,

¹⁴ The Project area of influence is defined as the three impact zone districts in Xaysomboun and Bolikhamxay, namely Hom, Thathom and Bolikhan.

¹⁵ The GoL implemented Health Services Improvement Project can serve as a model for GoL expanding their efforts to this area.

¹⁶ Prior to receiving compensation, self-resettlers had to prepare a self-resettlement plan which outlined where they would go, whether the receiving village had agreed for them to settle there, and whether they could buy enough land to continue to sustain livelihoods. Each plan was approved by PRLRC.

however, villagers require continual access to guidance on investment or management of new found wealth otherwise they are likely to squander much of it.

The two project-host villages are Ban Hat Gniun and Ban Thahuea.¹⁷ NNPI has built a police post in Hat Gniun Village and provides monthly support to the police to station six police officers¹⁸ full time to conduct regular patrolling in the villages (Hat Gniun and Ban Thahuea) and HSRA. NNPI improved the water supply and the school in both villages, and have undertaken livelihoods programs. NNPI also paved the road through the villages where at least 70 construction vehicles pass though daily.

At the time of the site visit, approximately 170 households (99.5 percent) in the Upper Reservoir Area expressed preference for cash compensation over replacement land. In the Lower Reservoir Area, 59 households have so far opted to move to HSRA, while 287 households will self-resettle and 21 families are refusing to register their assets. The GoL is in consultations with those 21 families.¹⁹

Recommendations:

- Develop a system to collect and inform the GoL and other projects where self-resettlement is a viable option using data from NNPIPC's monitoring program, which tracks the self-resettlers who have stayed within either of the three impact zone districts in Xaysomboun and Bolikhamxay.
- Develop a financial program to provide continual advice to villagers for investment and management of cash compensation.

Finding 3: NNPIPC made substantial efforts to reduce the impact of construction camp followers and associated activities on the resettlement and surrounding villages.

In anticipation of construction camp followers, NNPIPC and the GoL set aside areas leading to the construction zone for the establishment of guesthouses, shops, restaurants, bars and business related facilities. However, several businesses are now closing because the contractors have strict policies that require a 10:00 pm curfew for all staff. The project and local authorities regularly monitor and prevent issues associated with labor influxes (drug abuse, prostitution, other crimes).

Recommendation:

- Develop a system to collect and analyze lessons learned and inform the GoL and other projects where construction camp followers are a concern using data from NNPIPC's monitoring program.

¹⁷ These are considered project-host villages because of their proximity to the construction site and indirect impacts. Additionally, some of these households have been compensated for land used inside Houay Soup.

¹⁸ Two of the police officers are female.

¹⁹ Independent Advisory Panel Report_2017

Biodiversity

Finding 4: The initial biodiversity survey for the NNPI Environmental and Social Impact Assessment had significant shortcomings. This led to incorrect conclusions regarding project impacts on biodiversity, which need to be remedied before progress can be made on developing a watershed management plan for mitigating biodiversity impacts and selecting an appropriate biodiversity offset for residual impacts.

Prior to AsDB board approval, at the recommendation of the Independent Advisory Panel, an additional biodiversity survey was undertaken in the Nam Ngiep sub-catchment.²⁰ This survey highlighted the inadequacy of the original biodiversity survey described in the project's Environmental and Social Impact Assessment (ESIA).²¹ The updated biodiversity survey information was critical to informing the biodiversity management plan for the NNPI watershed and to reassessing the original selection criteria for the biodiversity offset. Significantly, the updated survey identified two IUCN Red List species not found in the original ESIA that will require species conservation plans - the Lao Warty Newt (*Laotriton laoensis*), categorized as globally endangered on the IUCN Red List^{22,23} and the Owston's Civet (*Chrotogale owstoni*), categorized as endangered on the IUCN RedList.²⁴ Additionally, at least five endemic fish species will require species conservation plans.

The inadequacy of biodiversity surveys and subsequent incorporation of its results into a project's ESIA is not specific to NNPI. The GoL recognizes the need to increase its national capacity to collect biodiversity baseline data and accurately identify endemic/endangered species. The point was raised that since developers are required to hire the consultants to collect the data, many are not willing to spend the necessary resources, or lack the necessary knowledge to identify biodiversity consultants, which results in the collection of minimal and, in many cases, inaccurate data for analysis in the ESIA.

Recommendations:

- The MOU between the GoL and project developers should set out clear criteria for developers to follow when selecting experienced and knowledgeable experts for collecting and analyzing biodiversity data for ESIAs and selecting biodiversity offsets. These selection criteria should be reinforced in the concession agreement.
- A national database should be established for species-specific information to provide the GoL and developers a better understanding of the spatial distribution and potential

²⁰ The Independent Advisory Panel identified the need for more detailed surveys since their first visit in 2013. Vongkhamheng et al. (2015)

²¹ Environmental Resource Management, 2014

²² Phimmachak et al. 2012

²³ Commercial networks have also become established in very recent years in response to demands for the species, and interviewees reported that Lao wildlife traders from Vientiane and Bolikhamxay provinces also had been placing orders with them to collect it.²³ There is also evidence that the demand for the species for medicinal purposes has increased, as interviews in May 2013 reported a Vietnamese trader with hundreds of dry *L. laoensis* in Xaysomboun district in 2011.²³

²⁴ Listed due to ongoing population decline. Hunting is a significant threat as the species is primarily ground-dwelling. The absence of intensive drift-fence cable snaring in the Nam Ngiep sub-catchment compared to other parts of Laos seems to have reduced the rate of loss of this species.

impacts for planning decisions. This information can serve as a baseline for future assessments and a benchmark for determining effectiveness of mitigation measures.²⁵

Finding 5: The proposed biodiversity offset, Nam Chouane/Nam Xang (NC-NX), was selected with insufficient knowledge of existing biodiversity in the sub-catchment, with limited surveys of the proposed offset, without clear guidance on selection criteria required to achieve no net loss and inadequate expert technical advice from the Biodiversity Advisory Committee.

Compliance with AsDB's safeguard policy and the concession agreement to ensure the project's obligation of no net loss will require targeted species conservation management plans within the watershed, the appropriate selection of a biodiversity offset site, or additional, supplemental offset sites. This selection process should be based on the highest potential for retaining or rebuilding high-value biodiversity that would in a no project scenario be severely depleted without competent management of the offset area.

Through the recommendation of the Biodiversity Advisory Committee, the Provincial Governor approved NC-NX as the primary offset in December 2015. AsDB and NNPIPC agreed with this decision in July 2016. The decision-making process for selecting NC-NX relied on minimal biodiversity data (the decision was reached before the report of the first survey of the area was completed), which has likely compromised the adequacy of the offset to meet the no net loss requirements of both the AsDB and the concession agreement.

Although the 2016 NC-NX biodiversity survey was limited in duration and scope, it concluded that the area, as delineated, has limited conservation value. The forest is typical of Lao semi-evergreen forests that are well represented within the Lao national protection system and the forest mammal community is of limited conservation interest²⁶ as the species identified are found in other protected areas within Laos, thereby providing other options for their conservation.

Based on information from the additional biodiversity surveys of both the NNPI sub-catchment (2015) and NC-NX (2016), AsDB was unsure about whether the NC-NX offset is adequate to ensure no net loss to enable the project to comply with AsDB's safeguard policy. Consequently, in cooperation with the GoL and NNPIPC, AsDB took a leadership role in convening an experts' workshop with the primary objective of determining whether NC-NX is sufficient. As a result of the workshop, AsDB is preparing an options paper that will assess the potential to achieve no net loss through mitigation in the NNPI sub-catchment, additional protection in NC-NX, and/or other areas, as offsets.

Similar to the NNPIPC concession agreement, it is possible that the mining and other hydropower projects' concession agreements within the Nam Ngiep watershed will be required

²⁵ A national database will also provide the ability to track the changing global conservation status of species. For example, some species currently are not rare enough to be selected for specific conservation consideration might qualify in 10 or 20 years' time.

²⁶ With the exception of the pangolin and possibly if the presence of the Critically Endangered saola (*Pseudoryx nghetinhensis*) could be confirmed.

to achieve no net loss through project mitigation measures and designation of appropriate biodiversity offsets. With this possibility, it could be worthwhile to take a landscape approach to the NNPI offset selection. The landscape from NC-NX to the Nakai Nam Theun National Protected Area (NNT NPA) has the potential not only to achieve no net loss but possibly achieve net gain of biodiversity for NNPI and perhaps for the other projects in the basin.²⁷ This landscape includes wet evergreen forests that are likely to have significant biodiversity values associated with threatened Annamite endemic species. Expanding the original offset to encompass a landscape approach to include areas of higher biodiversity and rare habitats which are underrepresented in the Lao national protected system, will maximize the opportunities to meet no net loss. Although a broader expansion would include several Provincial National Protected Areas, these areas are underfunded and currently not meeting their conservation goals. Additionally, an increased expansion to the landscape level would allow for identification of core zones to be effectively patrolled (similar to the NNT NPA zoning process) while preserving the larger landscape for future conservation efforts by the GoL.

USAID understands that the AsDB options paper will provide the blueprint for the way forward in identifying the biodiversity offset for NNPI. Without knowing the contents of the options paper, our recommendations are intended to support all proposed options that would achieve no net loss and possibly realize net gain. Given the uneven success of conservation efforts in Laos, it will be important to identify a landscape with the highest potential for retaining or rebuilding high-value biodiversity to enhance the project's chance of reaching no net loss.

Recommendations:

- Reflecting the need for excellent advice on managing areas for conservation, change the composition of the Biodiversity Advisory Committee to comprise people experienced in implementing site-based conservation and with extensive field experience in Laos.
- Reassess NC-NX as a potential biodiversity offset in light of recent biodiversity information collected for both the NNPI sub-catchment and for NC-NX using the oversight of the reconstituted Biodiversity Advisory Committee. This should include:
 - An assessment of areas of high conservation priority, such as wet evergreen forests, that are not well represented, or under a protected management plan, which could be improved upon through an offset and maximize the probability of no net loss.
 - Identification of opportunities for addressing current threats and preventing future threats to biodiversity.
- Explore the potential for the other projects within the basin that are anticipated to have negative impacts on species equivalent to or greater than NNPI, to support an aggregated offset that would encompass a landscape approach from NC-NX to NNT NPA. Given the proximity to the Vietnamese border and the biodiversity significance of

²⁷ Expand the area to include Nam Chat-Nam Pan, Phou Chomvoy Provincial Protected Area and Phou Sithon Endangered Species Conservation Area. This general area has been consistently stated to be among the highest priorities for national-level conservation in Laos since the protected area review.

that landscape combined with how rapidly biodiversity is being lost,²⁸ it would be very timely to begin exploring this option now. Recognizing the temporal sequencing of the offset with the other projects will require outside financial support, such as financing through the Environmental Protection Fund.²⁹

Finding 6: The Nam Ngiep watershed will be exposed to significant cumulative impacts due to the presence of logging concessions, several mining concessions, as well as seven operational and proposed hydropower facilities in the headwaters of the Nam Ngiep and a proposed hydropower facility on a tributary (Nam Chian) within the watershed.

NNPIPC is developing a watershed management plan for the Nam Ngiep sub-catchment that is expected to include species conservation management plans for at least two terrestrial species, the Lao Warty Newt and the Owston's Civet. It is not clear whether it will be possible for these two species to be conserved within the sub-catchment or Nam Ngiep watershed. Conservation management plans will need to be developed for five to six endemic fish species that occur in tributaries that will be inundated by the reservoir, but also occur in locations above full supply levels of the reservoir. The Lao Warty Newt is reportedly only found in four to five higher elevation habitats in northern Laos and very likely will not be found in the proposed offset. The survey of the proposed offset was inconclusive as to whether Owston's Civet is present. Although the data is limited, the best chance to conserve the endemic fish species may be within the Nam Ngiep watershed. These species and others in the watershed, if not directly impacted, are likely to be indirectly impacted by the project due to increased access into the watershed. Additionally, given the ongoing and future plans to develop the Nam Ngiep watershed, these species will be further subjected to cumulative impacts.

Unless there is effective cooperation with the other developers, it will be difficult, perhaps impossible, for NNPIPC to successfully mitigate its own project's impacts, in addition to mitigating cumulative impacts. The concession agreement allows for logging, mining, and hydropower development to occur within the watershed, unless these activities adversely affect the watershed.³⁰ The concession agreement also gives NNPIPC the opportunity to provide local GoL authorities and the Ministry of Natural Resources and Environment (MONRE) "effective solutions for terminating or reducing any activities which may adversely affect the watershed" and the authority to "track the status of previously identified and notified activities affecting the watershed to enable local GoL and MONRE to develop a clear understanding of the dynamics of impacts on the watershed." This type of information will help lay the foundation for NNPIPC to effectively pursue mitigation actions within its manageable interest

²⁸ NNT NPA is a good example where significant wildlife was lost between the mid-1990s and the start of WMPA activities. The area lost tigers within a period of 10 years, during the time decisions were being made as how to protect the area.

²⁹ The Environmental Protection Fund (EPF) is a financial mechanism established under the Prime Minister's Office. The EPF is operated by different sources of funds including AsDB endowments (about \$6 million), WB projects (about \$45 million) and mining and hydropower sponsors. NNPIPC has committed to contribute a total of \$990,000 to the EPF to provide for the protected area management and biodiversity conservation activities in Bolikhamxay and Xaysomboun provinces.

³⁰ Concession Agreement Clause 51 Watershed: (b)... "including not only impacts on water but also on flora, fauna and biodiversity and related environmental values as well as on the lives and livelihoods of persons residing and/or relying upon the watershed."

while identifying additional measures to mitigate cumulative impacts and subsequently lay the foundation for a Nam Ngiep River Basin Plan.

MONRE has identified the Nam Ngiep basin as one of 10 priority river basins to receive additional World Bank financing under the Mekong Integrated Water Resources Management Program. It is one of four river basins that is a GoL priority for river basin planning. In addition to river basin planning, other project components for the Nam Ngiep basin that will be supported by the WB proposal include water quality monitoring, water resource modeling, and installation of hydro-met stations.

Recommendations:

- Require multi-stakeholder collaboration in managing cumulative impacts within the Nam Ngiep basin.
- To effectively support NNPIPC's obligations under the concession agreement, NNPIPC should develop a monitoring program in collaboration with MONRE to provide data to inform NNPIPC's mitigation efforts and determine whether, and if so which, third party activities are negatively impacting the watershed.
- Building on AsDB's experience with the Nam Ngum River Basin Committee, with WB financing, support MONRE's efforts to establish the Nam Ngiep River Basin Committee and develop a river basin plan in a timely manner, e.g. prior to commercial operational date.

Finding 7: The concession agreement, with financial ceilings for NNPI commitment for both the watershed management and biodiversity offset, was determined prior to completion of the ESIA and before information was available as to the scope and extent of measures required to meet no net loss requirement.

The concession agreement requires both mitigation activities within the sub-catchment and the establishment of a biodiversity offset to address any residual impacts and to achieve no net loss. The concession agreement was signed 27 August 2013. The revised biodiversity survey of the sub-catchment was completed in 2015, which revealed the presence of species that will require species conservation management plans within the catchment. The two financial obligations under the concession agreement are \$6.55 million for watershed management³¹ and \$3.87 million for the biodiversity offset for the duration of the concession period, which ends 27 years after start of commercial operations. AsDB has committed to providing additional resources for technical assistance to support the designated offset site, conditional to NNPIPC committing sufficient funds to implement offset activities.

The POE and other stakeholders recognized that this amount of resources will not be adequate to effectively manage the watershed and the offset. Although depending on a number of factors, expert opinion is that a good estimate is \$1.2 million per year for the first ten years.

³¹ From the \$6.55 million for the watershed management, \$800,000 was dispersed to EPF.

Recommendation:

- The GoL should consider amending all future concession agreements with a contingency clause that enables the financial commitment to be increased by a certain percentage to cover the costs up to a certain ceiling once the final ESIA and biodiversity offsets are selected.

Finding 8: It will be challenging for NNPIPC to ensure that the management of the biodiversity offset is effective in order to meet AsDB's safeguard policy (and loan commitment) and concession agreement requirement of no net loss.

Unlike the Watershed Management Protection Authority (WMPA), which was created to protect and preserve the biological and cultural diversity of the NNT NPA as part of the Nam Theun 2 Hydropower Project, the management of the NNPI biodiversity offset will need to demonstrate that it is meeting both AsDB's safeguard policy and the concession agreement requirement of no net loss. Although, NNT NPA is one of the highest funded protected areas in the world, WMPA management has not been able to achieve its non-quantitative conservation or cultural objectives.³² Although independent technical advisors ostensibly provided support to WMPA, the management structure did not lend itself to its effective participation in managing the NNT NPA to achieve its goals.

Biodiversity offset outcomes are dependent upon the fundamental underpinnings of management structure and governance, taking into account uncertainty and risks that may undermine the potential for delivering conservation outcomes. This includes designing and implementing effective monitoring, evaluation and enforcement programs. As part of this process, it will be important to ensure that the WMPA experience is not replicated. This involves including the structural governance and partnerships to ensure success from the outset.

Effective management of the proposed offset includes addressing the issues associated with a transboundary border, as NC-NX borders the Pu Mat National Park in Vietnam. The Bolikhamxay Provincial Office of Natural Resources and Environment has received financial support from the Environmental Protection Fund³³ to prepare a proposal to strengthen its capacity and transboundary cooperation with Vietnam to improve biodiversity conservation in the national protection forest to the Vietnamese border. The Ministry of Agriculture and Forestry's Bolikhamxay staff planned to visit Vietnamese authorities to discuss coordination to manage the offset at the provincial level protected area to protected area in March 2017. The transboundary threats to NC-NX are similar to those in the NNT NPA, including illegal poaching and logging. To date, there is no precedent for the successful removal of these threats despite multiple previous and ongoing efforts. In 2004, Laos and Vietnam developed a

³² In 2013, the Panel of Experts for the NT2 hydropower project assessed that "the WMPA has been totally ineffective in protecting the watershed's biodiversity" due in part to inadequate governance structure and partnerships. The situation continues to this day (2017).

³³ WB LENS Project

Cooperative Action Plan for the control of illegal cross-border poaching, trade and transport of fauna and flora.³⁴ However, it appears that this plan was never implemented.

Recommendations:

- Prior to establishing a management structure, a comparative review of the factors underlying the uneven success to date in protected area management particularly along the Vietnamese border should be conducted. The most salient example for understanding the issues is the NT2 WMPA.
- As NNPIPC and the GoL develop the management governance and structure for the NNPI biodiversity offset, lessons learned from WMPA will be applicable. The following aspects should be seriously considered to develop a successful management structure:
 - Expand the MOU between the parties, to include an appropriately experienced organization with the primary goal of biodiversity conservation as a co-management partner during the early stages of structuring and implementing management structure and governance, with a review every 3-5 years on changing roles and responsibilities.
 - Contract an independent third party³⁵ to hire staff with the competencies required for effective monitoring, evaluation and enforcement to support no net loss and conservation outcomes.
 - Establish a strong foundation of fiduciary capacity by contracting a firm to conduct independent audits.
- Establish clear indicators and benchmarks to ensure no net loss.
- Conduct a review of the 2004 Lao-Vietnam Transboundary Cooperative Action Plan to understand its effectiveness and implementation constraints.

Finding 9: The absence of a national policy or legal framework with guidance for achieving no net loss and establishing biodiversity offsets produces both inconsistent approaches among developers and in delivering biodiversity outcomes.

The requirement of no net loss and the use of biodiversity offsets within concession agreements appear to be increasing for infrastructure projects in Laos. However, Laos does not have any legislation or guidance in place to help guide developers. A GoL policy on no net loss and biodiversity offsets can facilitate better relationships between the government, developers and financial institutions through providing clear guidelines and principles.

Recommendations:

- Conduct a series of workshops to support GoL-led development of a policy and legal framework for biodiversity offsets, to include mandatory no net loss objectives and key implementation standards for all biodiversity and ecosystem services. Additional considerations for the workshops could include:

³⁴ This was the first cooperative joint action plan for this area to control the transboundary wildlife trade and represents an important contribution to the protection of natural resources and biodiversity between Ha Tinh/Quang Binh (Vietnam) and Bolikhamxay/Khammouance (Laos) provinces and reviewed for approval by Vietnam – Forest Protection Department and Lao Department of Forestry.

³⁵ For example, an international professional human resource organization.

- Insert biodiversity offsets into a broader strategic framework for conservation that provides greater assurances that the corresponding biodiversity gains will be relevant. If a strategic framework for conservation does not exist, we recommend making this activity the first component of a workshop series.
- Establish institutional frameworks to implement, enforce, monitor, and evaluate the policy. Include clear requirements for the institutional arrangements that can deliver long term ecological outcomes expected from offsets.
- Identify mechanisms to ensure sufficient financing for managing the offset through time, especially beyond the duration for which the developers remain liable.
- Provide for third party verification of offset performance.

Civil Works

Finding 10: NNIPC is demonstrating good management practices for construction impacts on the site, the workers, and the surrounding community, including worker safety and reducing impacts of construction traffic on local communities and for managing solid waste.

The construction site showed a clear culture of worksite safety, and construction labor was restricted to work camps to reduce conflict and spread of HIV/AIDS. NNIPC had paved and placed speed bumps on haul roads to reduce impacts on the surrounding communities. Additionally, the company has constructed an award-winning system for managing solid waste generated during construction, including “best practice” landfill, leachate collection, and treatment system.

Recommendation:

- Ensure that the irrigation system for the resettlement village is operational before the next dry season.